WISCONSIN FACE INVESTIGATION

SUBJECT: Public Works Laborer Caught in Auger of Truck Sander

SUMMARY

On December 30, 2002, a 51- year- old laborer (the victim) at a city public works department died after his arm or clothing was caught in the auger of a truck sander (Figure 1). He was alone at the time of the incident and was found with this arm wrapped around the auger and his feet about 4 feet above the ground. When his co-workers found him, he had no pulse and was not breathing. The victim was freed from the auger and paramedics transported him to the hospital, where he was pronounced dead. FACE investigators concluded that, to help prevent similar occurrences, employers should:

Figure 1. View of Dump Truck with Spreader Attachment; Auger on Ground

- **Ensure that rotating machine components are completely shielded to prevent worker contact with moving machine parts.**
- **Ensure that workers are trained to recognize the hazards of working near exposed rotating machine parts.**
- **Ensure that workers do not wear loose-fitting clothing near machines with exposed moving parts that could cause entanglement.**
- **Check all equipment necessary for responding to emergencies on a regular schedule to ensure it is readily available and in good working condition when needed.**

INTRODUCTION

On December 30, 2002, a 51- year- old municipal worker (the victim) died after his arm or clothing was caught in the auger of a truck sander. On January 2, 2003, FACE investigators learned about the incident from the newspaper. The death certificate, sheriff's and medical examiner's reports were reviewed. On June 11, 2003 FACE investigators interviewed the municipal safety manager.

The public works department employs approximately 200 workers, including 40 truck drivers who do snow removal, leaf removal, sanding, and street cleaning. The workers operate a variety of machines, including chippers, tractors, graders, trucks, etc. Each worker can be assigned to operate any of the machines, depending on the city' needs. Employees receive specific initial and continuing training on machine operation, with

required return demonstration. Senior staff members are appointed to operate the trucks. The victim was a senior staff member.

The municipality has written safety expectations and holds monthly safety meetings. The meetings included representatives from the public works department, including streets, sewer, sanitation workers, mechanics, electricians, etc. Supervisors and the safety manager are jointly responsible for conducting the meetings.

The dump truck involved in this incident was purchased four years before the incident and was equipped with the tailgate auger spreader about two years later. At the time the spreader was purchased, the vendor provided specific training to the operators, including hands-on operation and return demonstration.

One advantage of the tailgate spreader system is that it can be used to spread a variety of materials, including mulch and salt, without changing equipment. City policy requires that the spreader be cleaned when switching from one material to another to prevent mixing the materials, and at the end of each shift when the spreader has been used. Labeled photos of the sander are included at the end of this report (Figures 2 and 3).

The department approved procedure to clean the spreader included the following steps:

- Remove the latch pins from the drop-down plate on the auger box
- Lower the plate
- Dump the remaining sand at sand pile, bring dump box down
- Run auger for one minute to clear remaining sand from auger box
- Turn auger off (controls are in truck cab)
- Go to sander attachment area, and use a broom, shovel, or gloved hand to sweep sand off bench area into the auger box. The dump box tailgate will not close if sand remains on the deck.
- Close the truck tailgate
- Raise drop-down plate, replace latch pins

Note: There is no interlock device on this spreader model to stop the auger when the drop down plate is lowered.

The victim had worked for the municipality for 32 years. He was 6’1” tall and weighed 300 pounds, and had a chronic illness that may have limited his mobility. On the day of the incident, he was wearing a tee shirt, a long-sleeved flannel shirt and a hooded sweatshirt with long sleeves.

INVESTIGATION

While it was cool and rainy the day of the incident, this was an unusually warm winter so in addition to spreading sand, the trucks were equipped to mulch trees. Once the sanding was completed, the truck could be cleaned to haul mulch on the next load.

On the day of the incident, the victim emptied the load of sand he had been spreading, and began cleaning the truck to prepare for a mulching hauling operation. He ran the auger to clear the remaining sand out of the sander, then dropped the plate down from the

auger box so he could access the 10-inch wide "bench" to wipe sand off (Figure 2). While the auger was still running, he apparently reached across it to clear the bench. It is unknown if the victim fell into the auger, or if his clothing or hand was caught by the revolving auger as he reached across it.

He was found by a co-worker who saw the victim with his left arm caught in the auger up to his shoulder. The co-worker immediately ran to the front of the truck and shut the truck off. From there he ran into the shop 40-50 feet away and got a pair of bolt cutters. He ran back to the truck and cut the hydraulic line for the auger. Two other co-workers heard the commotion, and came to see what was wrong. They immediately went to get the service truck from the shop, to use equipment to remove the auger and free the victim. When they got back with the truck, they discovered the torch compartment was empty. One of them ran back to the shop to get another torch. Paramedics arrived while the co-workers were cutting the auger with the torch (Figure 3). The victim's arm had been partially amputated by the auger, and the amputation was completed by rescue workers to free the victim. The victim was transported by ambulance to the hospital, where he was pronounced dead.

CAUSE OF DEATH

The official cause of death is compressional asphyxia due to arm/clothing caught in an auger.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Ensure that augers are shielded at all times while operating to prevent worker contact with rotating machine parts.

Discussion: The auger for the spreader attachment was located in the base of the spreader box. A hinged metal plate shielded the auger during operation, but could be released and dropped down whether or not the auger was running. The victim released the metal plate that was shielding the auger but did not turn the auger off while he apparently reached over the auger to clear sand from the deck. Interlock systems can be installed to prevent machines from operating whenever the guard or shield is not in place.

Recommendation #2: Ensure that workers are trained to recognize the hazards of working near exposed rotating machine parts.

Discussion: Workers who operate or work near machines with revolving parts should receive machine-specific training to recognize the hazard of entanglement and the need to maintain shields and guards in place while the machine is operating. Workers should understand that even when the shield or guard is in place, safe clearance should be maintained to protect against being caught by undetected sharp edges of damaged shields.

Recommendation #3: Ensure that workers do not wear loose-fitting clothing near machines with exposed moving parts that could cause entanglement.

Discussion: Employee clothing should be appropriate for the type of work being performed. Loose clothing should not be worn around hazardous machinery. In this case

the victim was wearing a sweatshirt that may have been caught in the auger. Employers should explore the feasibility of having employees wear tear-away clothing for personal protection when working around hazardous machinery.

Recommendation #4: Check all equipment necessary for responding to emergencies on a regular schedule to ensure it is readily available and in good working condition when needed.

Discussion: Workers who may need to use equipment for emergency purposes should be informed where the equipment is, and the equipment should be ready for use. In this case, the employer was in the process of transferring emergency equipment to a new truck. When the workers needed a torch to cut the auger, they took the truck where the torch had previously been kept without realizing the equipment was not in the truck. They had to make a second trip to get the correct vehicle with the cutting equipment.

Figure 2. Photo from Left Side of Sander

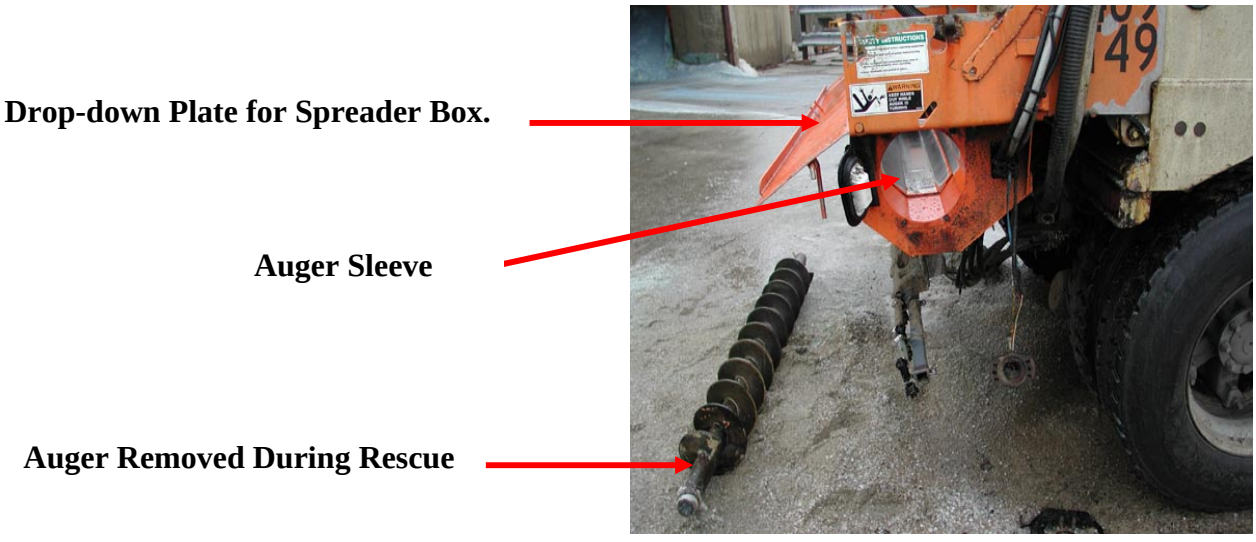

Figure 3. Photo of Right Side of Sander